

DOCUMENT RESUME

ED 419 377

EF 005 063

AUTHOR Earthman, Glen I.
TITLE Survey of School Facility Expenditures in Virginia.
PUB DATE 1994-03-00
NOTE 22p.; Paper presented at the American Educational Finance Association Conference (March 1994).
PUB TYPE Reports - Research (143) -- Speeches/Meeting Papers (150)
EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Capital Outlay (for Fixed Assets); *Construction Costs; *Educational Facilities Improvement; *Educational Finance; Elementary Secondary Education; *Expenditures; *School Buildings; State Surveys
IDENTIFIERS *Virginia

ABSTRACT

For this study, a survey instrument was developed to obtain data on several phases of school facilities in Virginia. The instrument contained 26 separate items to which local school personnel were asked to respond. Survey items were grouped around three main parts of the study: capital improvement projects, maintenance projects, and inventory systems. The population of the study included all 136 school divisions of the state, with a total of 121 divisions responding. The findings show that a high percentage of systems have an up-to-date capital improvement program in place and that these programs are concurrent with the state mandated, long-range plan approved by the school board. For the year under study, it is estimated that maintenance costs will consume approximately \$200 million dollars. This represents only half of the total projected need. If school divisions could bring all buildings up to the standard of the best school, then approximately \$1.5 billion would be needed. Inventory monitoring seems important in all districts, with 92 percent of school divisions keeping an up-to-date inventory. Six recommendations for school facilities are offered. (RJM)

* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *

SURVEY OF SCHOOL FACILITY EXPENDITURES IN VIRGINIA

Glen I. Earthman

Virginia Polytechnic Institute & State University

College of Education

Blacksburg, Virginia 24061-0302

(703) 231-9707

Paper Presentation

American Educational Finance Association Conference

March, 1994

PERMISSION TO REPRODUCE AND
DISSEMINATE THIS MATERIAL
HAS BEEN GRANTED BY

Glen Earthman

TO THE EDUCATIONAL RESOURCES
INFORMATION CENTER (ERIC)

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION
CENTER (ERIC)

☒ This document has been reproduced as
received from the person or organization
originating it.

☐ Minor changes have been made to
improve reproduction quality.

• Points of view or opinions stated in this
document do not necessarily represent
official OERI position or policy.

SCHOOL FACILITIES STATUS IN VIRGINIA

INTRODUCTION

Over the past few years, a great deal of attention has been given to the physical condition of the public school buildings in this country. This attention has been concurrent with the numerous reports on public education. At the same time, however, the condition of the school facilities has been secondary to the main thrust of these reports on what needs to be done to and for the public educational program. Understandably, people in all walks of life and in various responsibilities have been more concerned about the programs that are carried on in the school facilities than in the space where the instructional/learning program takes place.

Educators who have worked in both good and poor facilities can emphatically attest to the need for buildings that will adequately support the educational programs that the school division offers. In addition to the empirical evidence from practitioners of building effect upon the learners, there is sufficient research findings to support the fact that facilities do in fact have an impact upon the effectiveness of the instructional program (McGuffey, 1982; Edwards, 1991). In spite of these evidences, educators are so many times forced to house students in facilities that no longer fit the educational program or in buildings that are not in a good state of repair. Oftentimes the reason for this is the lack of adequate funds to correct the situation.

In 1989, a report on the condition of public school buildings was published (Educational Writers Association, 1989). This report indicated approximately \$41 billion will be needed for deferred maintenance and major repair of existing buildings and an additional \$84 billion for new construction and retrofitting of older buildings, for a total of \$125 billion. The results of the investigation are not different from a 1983 investigation by the American Association of School Administrators, but more current (AASA, 1983). The same dismal story of maintenance backlogs and lack of funds was told by the EWA report as was cited by the earlier AASA report.

Some of the data used in the EWA analysis were obtained through a survey of state departments of education. The office responsible for school facilities in each state department was contacted by the EWA for data regarding condition of school buildings, the amount of maintenance funds needed and available and planning capability of localities. Only 28 of the 50 states plus the District of Columbia responded to the survey, resulting in a 55 percent return. A rate of return this low does not ordinarily inspire a great deal of confidence in the returns, however, the main thrust of the report was based upon available data obtained through means other than a survey. Needless to say, the credibility of the report is in no way compromised by the small return on one aspect of the entire study. One of the states that did not respond to the survey used in the study was Virginia. As a result, aggregate knowledge about the condition of the schools in Virginia is still not available.

DESCRIPTION OF THE SURVEY

To determine the scope of funding for the facility needs of the public schools in Virginia, a descriptive study was mounted. As a response to the proposed study, a survey instrument was developed to obtain data on several phases of school facilities in the Commonwealth. The instrument that was developed for the study contained 26 separate items to which local school personnel were asked to respond. These items were grouped around three main parts of the study: Capital improvement Projects, Maintenance Projects and Inventory Systems. The survey instrument was submitted to four experts in the field of facility planning for validation and critique.

The population of the study was all 136 school divisions of the Commonwealth. A total of 121 school divisions actually responded with a completed survey instrument. This represented a 92 percent return.

FINDINGS OF THE SURVEY

School division personnel throughout the Commonwealth exhibit a great deal of planning expertise in housing the students of the local school systems. This was demonstrated by the fact that a high percentage of systems have an up-to-date capital improvement program in place and it is concurrent with the state mandated long range plan approved by the school board. Obviously, the school divisions with the greatest need for new facilities or building improvements have the greatest planning demand and a resultant

staff to take care of those needs. It is the small school division that lacks planning expertise on the staff. Regardless of the size of staff in the local school divisions, there is a reported \$2.17 billion in anticipated capital construction projects in the state. This amounts to about \$2226.00 for each student enrolled in the reporting school divisions of the Commonwealth. The range of spending for capital improvement projects is from \$4426.21 to \$2.16 per pupil.

Virginia does not have any program of cost-sharing for the construction of local school facilities. As a result, the local school divisions must use funds from either the county or city to construct school facilities. Only 14 percent of the reported \$1.15 billion of capital funds used came from the Literary Loan Fund of the Commonwealth. Of course, these funds must be repaid from local funds. This means that school boards are entirely dependent upon the wealth of the local governmental unit to provide adequate school housing for students. This situation alone is the cause of a great disparity between the quality and numbers of school facilities available to educate youngsters throughout the Commonwealth.

Maintenance funds are used to keep an existing building in a state of good repair. Maintenance projects can vary from replacement of floor tile to replacement of an entire roof. The amount of maintenance funds available to the school board is a measure of the condition of the buildings and the desire to keep the structures in good condition. The results of the responses on

the amount of funds needed for maintenance is contained in the following table.

Table I
Maintenance Funds Needed

Time frame	Amount of Funds
For academic year 1990-91	\$200,010,700
For total maintenance needs	\$400,692,100
Bring buildings up to standard	\$1,465,167,600

For the current academic year approximately \$200 million will be expended for maintenance of buildings. On a per pupil cost basis, the range for such expenditures is from \$4451.68 in King and Queen County to a low of \$.16 in Halifax County. For the total projected maintenance needs, approximately \$400 million will be needed and if school divisions could bring all buildings up to the standard of the best school in the division, approximately \$1.5 billion would be needed. Although these amounts may seem large in totality, on a per pupil basis, they are very small -- \$209.00 per year for requested maintenance needs; \$418.70 for a 6 year period; \$1,521.60 for all maintenance needs to bring every facility in the school division to the standard for the best school building. If the state were to fund the maintenance needs of every school division, the cost per pupil would be indeed small; however, these funds are reported on a local school division basis and the need

is not evenly distributed among the school divisions. Again, these funds are from local resources only and the wealth of the locality then plays a big part in the availability of such funds.

Many factors impinge upon the amount of funds allocated to local school maintenance projects, the most important one is the political power structure in evidence in the local school division. No matter how forceful and thorough the school administration and school board are in their request for funding, in Virginia, the local governing body makes the final decision. The Board of Supervisors or City Council is the political body charged with the responsibility of levying taxes and allocating funds to the various local agencies including the schools. As a result, this body is very sensitive to the limits of taxation they believe the citizenry will permit. Oftentimes the local governing body finds the maintenance portion of the school budget convenient to reduce to stay with the limits of acceptable taxation. When this happens regularly, the buildings deteriorate to dangerous proportions long before the end of the useful life of the building is reached.

Because Virginia has contrasting geographic regions with varying degrees of assets and resources, it was decided to investigate the degree to which this had a bearing upon the maintenance needs. In order to determine the amount of variance caused by the location of the school division in relationship to the amount of maintenance funds needed, a one-way analysis of variance was conducted. The state was divided into five regions: southwest, northern, central, peninsula/eastern shore, and

southeastern. The latter region included Richmond and the neighboring counties of Hanover, Henrico, and Chesterfield. An ANOVA was run for each of these regions using the three estimates of maintenance funds needed -- for one year, to complete the six year program, and funds to bring all schools up to standard. In each case, a significant ($p < .01$) F ratio was found indicating the location of the school division was significantly associated with the amount of funds estimated by school personnel. This was hardly surprising because the number of students and, therefore, the number of school buildings is also directly related to the location of the school division itself. Obviously, the estimates for the largest amounts of funds were located in the northern and southeastern regions which also contain the school divisions with the most growth in student population. The analysis simply confirmed what was known before.

Many school divisions report having a preventative maintenance program in existence, but these programs do not cover some of the more basic elements of the building. The greatest number of programs cover the heating system. Coverage is not uniform in spite of the fact that a preventative maintenance program is crucial to the well-functioning of a building.

School division personnel are dealing with several environmental problems in buildings. Approximately 82 percent of the reporting school divisions indicated asbestos removal is still a problem. Other problems such as radon gas, underground storage tanks and lead in drinking water are still concerns for a large number of school divisions.

The third area of investigation dealt with school building inventories. At one time, school divisions were required by law to maintain such an inventory. Presently, maintaining an up-to-date local school building inventory is a local concern for the school division, in spite of legal mandates. In spite of this, over 92 percent of the school divisions keep an up-to-date inventory. Only 31.8 percent of the school divisions have computerized the inventory, which means only the large school systems have done it. This is also indicative of the fact that school divisions with a substantial building program are the ones that actually maintain a computerized inventory and use it in planning.

RECOMMENDATIONS

Because of the heavy reliance upon local funds to finance both the capital improvement and maintenance needs of the school division, there is a disparity in effort between the wealthy and poor school divisions. This disparity can also result because of a difference in philosophical beliefs concerning the expenditure of local tax dollars, but for the most part, school divisions with limited taxing ability are the ones that have the greatest need for assistance in housing students in adequate facilities. In the absence of outside assistance, many school divisions can not provide the type of safe housing that a modern educational program demands.

1. The state legislature should initiate a study to determine the best method for assisting school

Board of Education. Distribution of the funds should be on a need basis with a local effort factor. All school divisions should qualify for some assistance based upon the wealth, need and effort of the locality.

This fund should be capitalized at approximately \$100 million each year for the next five years. The difference between the \$790 million needed for up-dating of all school facilities and the \$500 million of proposed state funds would come from local sources. The \$100 million would represent only about \$100.00 per pupil each year for five years in state funds. With the current economic down-turn, the economy of the state would be enhanced with the investment of \$100 million per year for maintenance projects in all parts of the state. Without this type of encouragement, many of the less wealthy school divisions will continue to defer maintenance projects until the costs are much higher than at present.

3. **The State Board of Education should assist all school divisions in establishing and maintaining a viable preventative maintenance program.**

All school divisions could benefit from a comprehensive preventative maintenance program that includes all systems of each building. Evidence shows that only about half of the school divisions have such a program. Further, with the exception of large school systems, the preventative maintenance program in small school divisions does not cover essential components of the building. The State Board of Education through the Department of Education could encourage local school division personnel to

either expand the existing program or establish a new program through workshops and technical assistance programs. Without this type of assistance, local school divisions may not see the wisdom of such a comprehensive program and not implement it.

4. The State Board of Education should initiate a study to develop a computerized, uniform school building inventory system to be used in all school divisions.

Although 92 percent of the school divisions maintain a school building inventory, few are computerized. Some inventories are simply a listing of the school building with only the most meager data recorded. Such an inventory is of little use when trying to make decisions as to what building the various students should attend, changes in bus routes, or similar management decisions. The benefits of a computerized system that is uniform throughout the state are many. If an inventory system can provide better data, then better decisions can be made. A computerized inventory can be maintained up-to-date at less cost than a manual system and it can be more accurate in the data stored.

5. The State Board of Education should strengthen the Energy and Facilities Section of the State Department of Education to assist in the provisions of extended services to local school divisions as called for in this report.

For many years the Energy and Facilities Section of the State Department of Education has been the office responsible for reviewing the architectural plans for new construction, renovation and improvements in accordance with state law. As beneficial as

this service is to most of the school divisions, it is perceived as an interference by the largest school divisions. On the other hand, this service of review has been very beneficial for smaller school divisions. The state department of education staff has acted in the past as a sort of adjunct to the school staff in reviewing architectural plans and drawings. Such service should continue for those school divisions that need it; larger school systems with architectural review expertise might be exempt. Nevertheless, if the state is to share in the funding of capital improvements and perhaps maintenance projects, this section of the department of education should be strengthened to service the school divisions adequately.

6. The State Board of Education should provide leadership in strengthening the school facility planning capability of local school divisions by establishing a planning methodology for all capital projects.

Many school systems simply do not know how to plan school facilities. As a result, planning of facilities is oftentimes done by non-educators for educators rather than the educators actually guiding and administering the planning process. The local school division personnel should recognize the planning responsibilities incumbent upon them and should be knowledgeable about how to discharge them. If, however, the local planning methodology is left to the discretion of a superintendent who is perhaps not knowledgeable about physical planning efforts or a person who does not have a planning staff to properly assist, the degree of planning will not improve. The State Board of Education

should, therefore, promote an enlightened planning methodology and hold staff development activities in local school divisions to disseminate such. Through a definition of appropriate planning methodology and staff development activities to insure its use, the planning of facilities could improve measurably throughout the Commonwealth.

APPENDIX

STATE GROUPINGS OF SCHOOL DIVISIONS

The state was divided into five regions to determine if any differences in criterion variables existed across locations within the state. The regions were defined as follows:

Region 1 - Southwestern Virginia, including all counties west
of Bath, Rockbridge, Amherst,
Appomatax, Campbell and Pittsylvania

Region 2 - Northern Virginia, including the counties of
Frederick, Clarke, Warren, Fauquier, Stafford,
Prince William, Loudon, Fairfax and Arlington

Region 3 - Central Virginia, including all counties between

Region 4 - Peninsula and Eastern Shore, south to include to

Region 5 - Southeastern Virginia, including Richmond and the

ANALYSIS OF VARIANCE RESULTS

In Table IIa are the results of a one-way analysis of variance of districts' estimates of total maintenance needs across the state regions.

Table IIa
ANOVA Results of Division Estimates of Total
Maintenance Needs Across Regions

Source of Variation	Sum of Squares	df	Mean Square	F
Region	5.97	4	1.49	3.55*
Residual	4.16	99	4.20	
Total	4.76	103		

* $p < .01$

A significant ($p < .01$) F ratio was found in the ANOVA results on the estimates of total maintenance needs. This result indicates that the districts' location is significantly associated with the amount of funds estimated to be required for maintenance needs.

Table IIb
Group Means and Standard Errors for Division Estimates
of Total Maintenance Needs Across Regions

Regions	Means	Standard Errors
1	x = 2484985 N = 36	1080788
2	x = 7158481 N = 13	1798539
3	x = 1648309 N = 31	1164691
4	x = 2136088 N = 12	1871979
5	x = 8137518 N = 12	1871979

Region 5 appears to have the highest mean while Region 3 appears to have the lowest mean.

Table IIIa contains the ANOVA results of the analysis of the division estimates of needed maintenance funds for the 1990-91 school year across state regions.

Table IIIa
ANOVA Results of the Division Estimates of Needed
Maintenance Funds for 1990-91 Across the Regions

Source of Variation	Sum of Squares	df	Mean Square	F
Region	6.50	4	1.62	4.65*
Residual	4.16	99	4.20	
Total	4.76	103		

* $p < .01$

A second significant relationship was found involving the state regions. The above summary shows the division estimates of funds required for the current school year are significantly affected by the regions in which they are located ($p < .01$).

Table IIIb

Group Means and Variances for Division Estimates of
Needed Maintenance Funds for 1990-91 Across the Regions

Regions	Means	Standard Errors
1	x = 1239668 N = 38	303275.1
2	x = 3174678 N = 14	499648.5
3	x = 961562.7 N = 34	320618.9
4	x = 792284.1 N = 15	482706.3
5	x = 2117526 N = 16	467378.4

Region 3 appears to have the largest mean and Region 1 appears to have the smallest mean.

In Table IVa is shown the third one-way analysis of variance. The region in which a division is located is significantly associated with the total dollar amount of the complete Capital Improvement Program.

Table IVa
ANOVA Results of the Division Amount of Complete
Capital Improvement Program Across the Regions

Source of Variation	Sum of Squares	df	Mean Square	F
Region	1.22	4	3.05	3.23*
Residual	6.99	74	9.44	
Total	8.21	78		

* $p < .01$

Table IVb
Group Means and Variances for Division Amount of
Complete Capital Improvement Program Across the Regions

Regions	Means	Standard Errors
1	x = 6047422 N = 22	6553881
2	x = 36422000 N = 13	8525860
3	x = 12567000 N = 17	7455648
4	x = 15320000 N = 11	9268587
5	x = 34262000 N = 16	7685107

Region 2 appears to have the highest mean while Region 1 appears to have the lowest mean.

REFERENCES

- AASA. 1983, The Maintenance Gap: Deferred Repair and Renovation in the Nation's Elementary and Secondary Schools. A Joint Report by the American Association of School Administrators, Council of Great City Schools, and National School Boards Association, January.
- AASA. 1991, Schoolhouse in the Red: Cutting Our Loses. Roslyn, VA: American Association of School Administrators.
- Associated General Contractors of America. 1982, Fractured Framework: Why America Must Rebuild, The Association, November, 1982.
- Carroll McGuffey. 1982, Facilities, Chapter 10. Herbert Walberg (ed.) Improving Educational Standards and Productivity. McCutchan Publishing Co.
- Edwards, Maureen M. 1991. Building Conditions, Parental Involvement, and Student Achievement in the DC Public School system. Unpublished Masters' thesis, Georgetown University.
- Educational Writers Association. 1989, Wolves at the Schoolhouse Door: An Investigation of the Condition of Public School Buildings. Washington, D.C.: The Association.
- National Center for Education Statistics. 1982, Digest of Education Statistics, 1982. Washington, D.C.: NCES, 1982.



U.S. Department of Education
Office of Educational Research and Improvement (OERI)
National Library of Education (NLE)
Educational Resources Information Center (ERIC)



**National Clearinghouse for
Educational Facilities**
1750 Kraft Drive, Suite 2200
Blacksburg, VA 24060

REPRODUCTION RELEASE

(Specific Document)

I. DOCUMENT IDENTIFICATION:

Title: <u>Survey of School Facility Expenditures in Virginia</u>	
Author(s): <u>Earthman, Glen I.</u>	
Corporate Source:	Publication Date: <u>March 1994</u>

II. REPRODUCTION RELEASE:

In order to disseminate as widely as possible timely and significant materials of interest to the educational community, documents announced in the monthly abstract journal of the ERIC system, *Resources in Education* (RIE), are usually made available to users in microfiche, reproduced paper copy, and electronic media, and sold through the ERIC Document Reproduction Service (EDRS). Credit is given to the source of each document, and, if reproduction release is granted, one of the following notices is affixed to the document.

If permission is granted to reproduce and disseminate the identified document, please CHECK ONE of the following three options and sign at the bottom of the page.

The sample sticker shown below will be
affixed to all Level 1 documents

PERMISSION TO REPRODUCE AND DISSEMINATE THIS MATERIAL HAS BEEN GRANTED BY <u>Sample</u> TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

1

Level 1



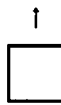
Check here for Level 1 release, permitting reproduction
and dissemination in microfiche or other ERIC archival
media (e.g., electronic) and paper copy.

The sample sticker shown below will be
affixed to all Level 2A documents

PERMISSION TO REPRODUCE AND DISSEMINATE THIS MATERIAL IN MICROFICHE, AND IN ELECTRONIC MEDIA FOR ERIC COLLECTION SUBSCRIBERS ONLY, HAS BEEN GRANTED BY <u>Sample</u> TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
--

2A

Level 2A



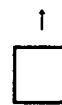
Check here for Level 2A release, permitting reproduction
and dissemination in microfiche and in electronic media
for ERIC archival collection subscribers only

The sample sticker shown below will be
affixed to all Level 2B documents

PERMISSION TO REPRODUCE AND DISSEMINATE THIS MATERIAL IN MICROFICHE ONLY HAS BEEN GRANTED BY <u>Sample</u> TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
--

2B

Level 2B



Check here for Level 2B release, permitting
reproduction and dissemination in microfiche only

Documents will be processed as indicated provided reproduction quality permits.
If permission to reproduce is granted, but no box is checked, documents will be processed at Level 1.

I hereby grant to the Educational Resources Information Center (ERIC) nonexclusive permission to reproduce and disseminate this document as indicated above. Reproduction from the ERIC microfiche or electronic media by persons other than ERIC employees and its system contractors requires permission from the copyright holder. Exception is made for non-profit reproduction by libraries and other service agencies to satisfy information needs of educators in response to discrete inquiries.

Sign
here,→
please

Signature: <u>Glen I. Earthman</u>	Printed Name/Position/Title: <u>Glen Earthman, Director</u>	
Organization/Address: <u>National Clearinghouse for Educational Facilities</u> <u>1750 Kraft Drive, Suite 2200</u> <u>Blacksburg, VA 24060</u>	Telephone: <u>540-961-4229</u>	FAX: <u>540-961-4252</u>
	E-Mail Address: <u>earthman@edfacilities.org</u>	Date:



(over)

III. DOCUMENT AVAILABILITY INFORMATION (FROM NON-ERIC SOURCE):

If permission to reproduce is not granted to ERIC, or, if you wish ERIC to cite the availability of the document from another source, please provide the following information regarding the availability of the document. (ERIC will not announce a document unless it is publicly available, and a dependable source can be specified. Contributors should also be aware that ERIC selection criteria are significantly more stringent for documents that cannot be made available through EDRS.)

Publisher/Distributor:
Address:
Price:

IV. REFERRAL OF ERIC TO COPYRIGHT/REPRODUCTION RIGHTS HOLDER:

If the right to grant this reproduction release is held by someone other than the addressee, please provide the appropriate name and address:

Name:
Address:

V. WHERE TO SEND THIS FORM:

Send this form to the following ERIC Clearinghouse:	National Clearinghouse for Educational Facilities 1750 Kraft Drive, Suite 2200 Blacksburg, VA 24060
---	--

However, if solicited by the ERIC Facility, or if making an unsolicited contribution to ERIC, return this form (and the document being contributed) to:

ERIC Processing and Reference Facility
1100 West Street, 2nd Floor
Laurel, Maryland 20707-3598

Telephone: 301-497-4080
Toll Free: 800-799-3742
FAX: 301-953-0263
e-mail: ericfac@inet.ed.gov
WWW: <http://ericfac.piccard.csc.com>